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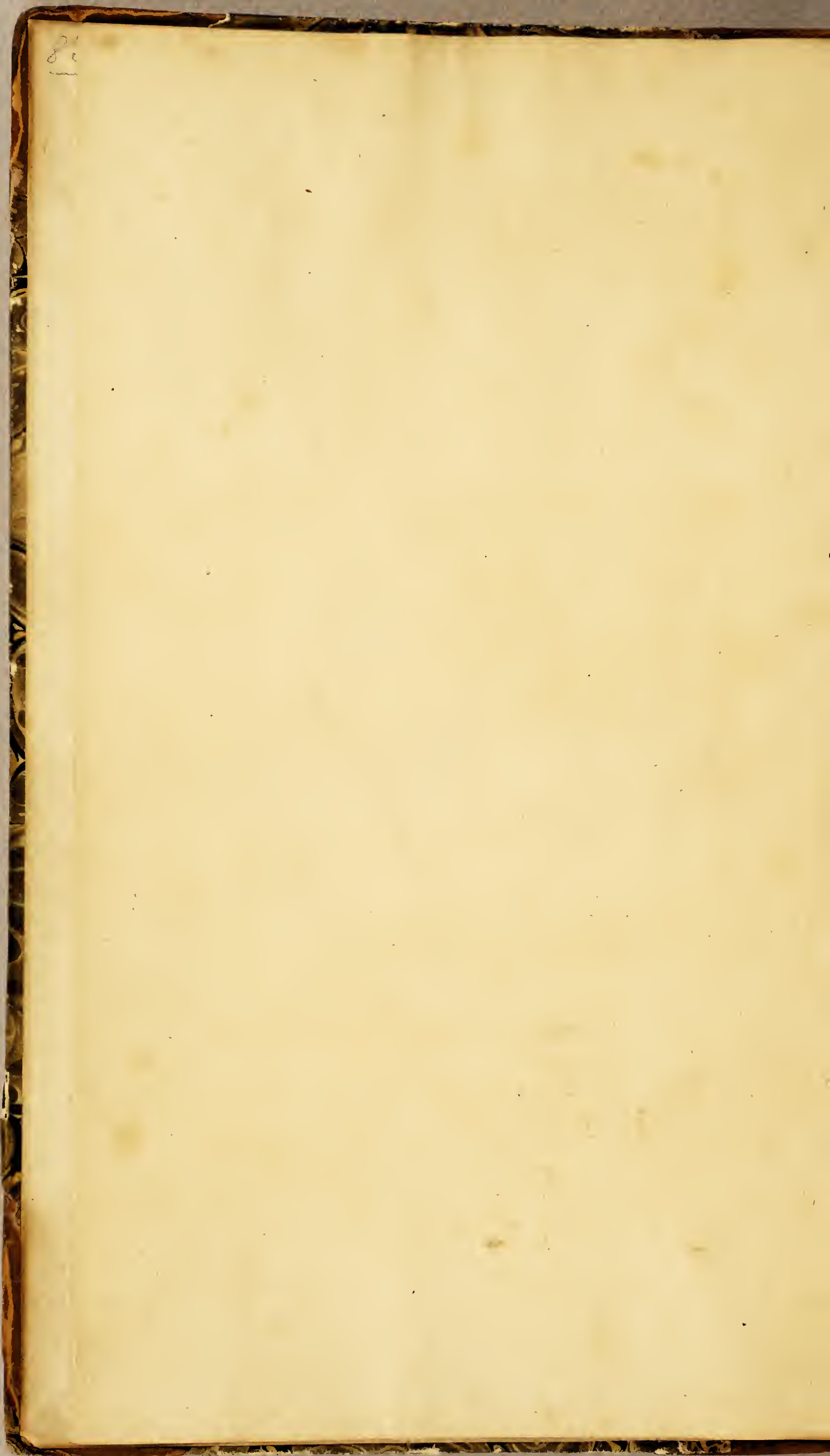
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S U G A R,

Proving it the

Most pleasant, salubrious, and useful
Vegetable to Mankind ; especially
as refin'd and brought to its present
Perfection in *England*.

W I T H

REMARKS on a Method lately published
of procuring a FERMENTATION in the
West-Indies.



L O N D O N :

Printed for E. COMYNS, at the South Entrance
of the *Royal Exchange*. M DCC LII.

[Price Six-pence.]

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TO THE

GENTLEMEN, PLANTERS,
MERCHANTS, REFINERS, GROCERS,
and DISTILLERS,

Concern'd in the

SUGAR TRADE;

ALSO,

To those LADIES who delight in the
Use and Consumption of

REFINED SUGAR;

This ESSAY is inscrib'd by

Their most humble Servant,

The AUTHOR.

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T A B L E

O F

C O N T E N T S.

Para.

1. *O*F the Nature of Sugar.
2. Nature's Works inexplicable.
3. The Use of Chemistry.
4. Sugar known to the Ancients, and by what Means.
5. Of sending Boilers to the West-Indies, their Use.
5. The Planters ought to be careful of the Character of their Sugar.
6. Sugar accus'd of being hurtful.
7. Sugar, of what it consists.
8. Its Use when crude or raw.
9. How refin'd, its good Qualities.
10. Proper for Infants, and their Preference of it.
11. Approv'd of by the several Species of Beings.
12. Its Friendliness in various Applications.
13. Not the Cause of rotten Teeth.
14. Grocers have bad Teeth, and the Cause.
15. Sugar an excellent Soap.
16. Melasses proceeding from Sugar, its Use as Food.
17. Melasses

T A B L E, &c.


Para.

17. *Melasses produces a fine Spirit.*
17. *Compar'd with French Brandy.*
18. *French Brandy, its Original.*
19. *Melasses Spirit preferable in almost every Use*
20. *Rum, its Original.*
21. *Melasses Spirit clear'd of being hot and fiery*
22. *Being mix'd with French Brandy or Rum, improves them.*
23. *Rum generally prefered to French Brandy.*
24. *Melasses an excellent Subject for Brewing.*
25. *Sugar improves the most delicious Fruits.*
26. *Its preserving Quality.*
27. *Sugar indebted to the Ladies.*
28. *Our Obligations to it for preserv'd Ginger, &c.*
29. *Sugar accus'd of being hot, answer'd.*
30. *Raw Sugar not sweeter than refin'd.*
31. *That refin'd Sugar has not an acid Taste or Quality.*
32. *Further prov'd from Chirurgical Operations.*
33. *Sugar does not generate Worms.*
34. *Story of Dr. Slare's Grandfather.*
35. *Story of the Duke of Beaufort.*
36. *Dr. Slare's Account of himself.*
37. *The Conclusion, with Remarks on Fermentation.*



A N

E S S A Y, &c.

(1)  Very eminent Physician and Chemist tells us, There is no vegetable Substance, whose Nature is harder to determine, than that of Sugar; that it cannot be call'd a Salt, an Oil, or a Soap, because it has many essential and surprizing Qualities, not found in those Bodies: Though it does in many Instances partake of their Natures, as demonstrated from Chemical Experiments; yet how so many valuable Properties should be lodg'd in one Vegetable, is by Reason hitherto inexplicable.

(2) Herein does Nature bid Defiance to our most industrious Enquiries, and plainly evinces, that as the Ways of its mighty Author, are past finding out, his Works, the more they are look'd into, the more amazing they are: As we are not able to explicate or account for them, though the unwearied Mind of Man is continually employ'd in Researches.

(3) Chemical Processes are often productive of surprizing Phænomena; which, as they seem out of Nature, we can only admire at. Ne-

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vertheless, as they more frequently disclose such Effects, that, by our Attention to the Nature of Matter, and our Reasonings thereon, are the only Means of discovering to us, the different Substances of which Bodies are compos'd or consist, and are of inexpressible Benefit to Mankind; and to the Chemical Art are we indebted, for the Means of separating those gross and feculent Particles, found, as it is brought from the *Indies*, in that most delightful concrete Sugar.

(4) At what Time, or by what Means, the Juice of this Reed or Cane was brought to that Consistence, which we term Sugar, cannot be ascertain'd; but we may reasonably believe, that as it was originally design'd, by its many Virtues, to be a great Blessing to Mankind; Nature could not keep it long in Obscurity, agreeable to the Sense we have of the Goodness of its Author. It appears to be known to the Ancients, though very imperfectly, by what they say of it. This Juice by some is call'd Honey, found in the Leaves of Reeds; by others, a Liquor, with which Honey itself is not to be compared for Sweetness; and by one it is term'd an *Indian* Salt, indurated by the Heat of the Sun; which latter Description plainly indicates the manner of its becoming granulated and known. This Reed or Cane consisting of a spongy Pith replete with saccharine Juice, and cover'd by a thin Rind or Skin, and being agitated by the Wind, do shock and bruise one another, and thereby discharge

discharge, in Part, their Contents, which by the Heat of the Sun is indurated, and thus becomes what we call Sugar; and this we may be further assured of, that its extraordinary Lusciousness drew the Attention of considerate and thinking Men, who, upon very small Reflection, concluded, that separating it from that Quantity of heterogeneous Particles, in which it was envelop'd, must be of universal Benefit. The most probable, and we conceive the only Way of performing this, was from a Knowledge and Acquaintance with Chemical and Experimental Philosophy; for by what other Means may we discover the Manner and Motive of Bodies so powerfully operating on each other. The refining of it here, is no more than a Repetition of the first Operations, philosophically consider'd, as it doth appear after every Process, and becomes thereby more homogeneous.

(5) From the foregoing Considerations, we are induced to think that the sending of Men, call'd Boilers, to the Sugar Islands, who are only acquainted with the common Methods of refining here, is very unlikely to be of Service to the Gentlemen Planters; nothing being more demonstrable than the great Disservice they are to the Refiners here; and how that will be of real Benefit to the Planter, we believe it difficult to shew, but choose to refer the discussing this Matter to another Place. If the Planter expects any Improvement on his Estate, from the just and proper Application of its Produce, it must be from Men of a

different Turn ; who are not unacquainted with Nature, and are capable of considering the Juice of the Cane in various Lights, as it is affected by the different Soils in which it grows, and which every Man, who understands vegetable Nature, will consider, and apply a suitable Treatment, to facilitate the Separation of those heterogeneous Particles imbibed from thence, and do more or less strongly adhere ; and whatever he does, he should be careful to support the Character of his Sugar in the Opinion of the Refiners here ; for without their Labour and Industry, a small Portion of Sugar would answer the Consumption. This Consideration has not, as we apprehend, the Weight, that Reason, and the Nature of Things require it should. But to return from this Digression.

(6) In speaking of Sugar, we always mean refin'd, unless crude or raw Sugar is particularly nam'd. Sugar therefore, we say, is falsely and very unjustly accused of being hurtful, as containing a secret Acid of a very dangerous or corrosive Sharpness, productive of many rueful Distempers, and filling the Body with Phlegm, fretting the Gums, and rotting the Teeth, and a Caufer or Promoter of the Scurvy. To make the contrary of all this appear, will confirm every sensible Person in the Use of it, as it will convince him, that it is as wholesome and innocent, as it is pleasant ; and therefore must add greatly to the Satisfaction of such, as have hitherto delighted in the Consumption of it.

(7) Sugar

(7) Sugar, as brought from Abroad, contains, as appears by Analization, oleaginous, saline and earthly Substances; and is a kind of neutral Soap: By Distillation it affords a Spirit or Liquor not inflammable.

(8) The great Parent of the Universe seems to have bless'd this Vegetable in a more peculiar manner than many others, as he has made it, when even crude or raw, conducive to the Service of Mankind, by taking down the unweildy Bulk of Fat that some Constitutions are habitually troubled with. The great *Boerhave* has asserted, it resolves, relaxes, attenuates, and proves serviceable in all Distempers that proceed from a viscous Cause, and is able to dissolve any glutinous, gummy, or oleaginous Substance in the Body, so as to render it easy to unite, and be carry'd off, along with the more aqueous Juices.

(9) Sugar is refin'd and purify'd by proper Subjects, assisted by Fire, the universal Cause of all the Changes in Nature, these produce a Separation of its heterogeneous Particles, which rise as Scum, and being taken off, there remains a nutritious and balsamick Juice, and by exhaling the Water, which was made use of in the foregoing Operations, granulates and becomes Sugar, regenerated, purified, refin'd, and of a most pleasing Taste. It is a pretty general Observation, that those Things which give us most Delight, by the free Use of them, become hurtful; this cannot be said of Sugar, for as no ill Property belongs to it, so nothing pernicious
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can possibly attend its use. We cannot by any better Means confirm the Truth of this, than by appealing to the Experience of those, who have for some Years, made it a principal Part of a daily Regale, and it might be hop'd that those who have complain'd of the Cholic from the use of Tea, might, by being less profuse in that, and more so in the free Use of the finest Sugar, by its soft and balsamick Quality, prevent that Disorder,

(10) When Infants are depriv'd of that Food kind Nature has design'd for them, what do the most Judicious prescribe in its Stead? Milk and Water, even Bread excluded; and why? Because the smallest Particle of it contains an earthy Substance, which may cause Obstructions in their very minute Passages; but in order to give it the greatest Resemblance of that Juice or Liquor, prepared for it in the Mother's Breasts, the finest Sugar is ordered for that Purpose, and does not the tender Infant give its Approbation of what is thus duclified, in preference to what is not so? Let any Nurse make the Experiment, and she will soon be convinc'd of the Choice, that, in this Instance, Nature itself gives to this excellent and pleasing Sweet; nay, this Nutriment may be look'd upon as more wholesome for tender Infants, than the Breast Milk of many, who allow themselves the Use of burning Spirits, and feed on gross and over-season'd Viands.

(11) That Sugar has a most delightful Relish, we have the Consent of all the various Species

of Beings, and this furnishes us with an Argument for the salubrious Qualities of it. Nature has in a surprizing manner dictated to them, what is their most proper Food and Nourishment, and given them such an Instinct, as causes them not only to know Things distasteful to their Palate, without their essaying them, but to know such Things as are prejudicial to their Natures; nay, their Knowledge is so extensive, when by Accident, through Inadvertency, they have laid hold on any thing they find injurious, as to discover to them Remedies, which they have immediate Recourse to. No one Thing in Nature hitherto known, is palatable to all kinds of Beings, Sugar excepted. We have often seen the Horse that has been in the Mill, and grinding of Sugar, when his Head has been loosen'd, in order that he might eat or drink, put his Nose into the Sugar, and take up a Mouthful, which he would repeat for a considerable Time, if the Negligence of the Miller permitted.

There is a small black Ant in the *West Indies*, a domestic Insect, when by Accident some refin'd Sugar is let fall on a Table or Dresser, though at that Time there is not the Appearance of one Insect, in less than a Minute, a considerable Number of them will be seen devouring of it with great Eagerness; and what is very diverting, when it may be reasonably presumed, their Appetites are satisfied, you will perceive them in Parties of three or four, with joint Force, carrying away small Pieces

Pieces. Thus from almost the largest Animal, to almost the smallest Insect, we discover a Fondness for that most delicious and agreeable concrete Sugar; which is an unanswerable Testimony of the Wholesomeness and Pleasantness of it.

(12) That Sugar is as friendly in outward Applications, let us consider some Cases in which it is or may be used: As the Apple of the Eye is the most tender Part belonging to the human Frame, if some Sugar or Candy is finely powder'd, and blow'd into the Eye, it removes white Spots and Films; and when by Cold or otherwise hurt, by a Defluxion of sharp Humours, its soft and balsamick Properties gives the greatest Ease; in Coughs and Sore Throats, does it not, when apply'd, sheath those salt and sharp Humours, which are the Causes, and also heal the affected Parts?

(13) And here a common Accusation occurs, that Children greatly injure their Gums and Teeth by eating of Sugar, and sweet Things; whereas carious Teeth and carroded Gums are most evidently owing to improper Food for Children, which is productive of sharp Humours, and which are contain'd in the Liquor proceeding from the Glands of the Mouth and Throat, and are the Causes of the Foulness that affect those Parts.

(14) It is also observ'd, that Grocers have very bad or few Teeth, owing to the eating of Sugar, and sometimes scabby Hands, by some call'd, *The Grocers Itch*, caus'd, as said, by the handling

handling of Sugar. Permit us to say what a learned Advocate for Sugar has written ;
 “ There is indeed a sort of Sweet, not with-
 “ out Cause complain’d of, for being mis-
 “ chievous to the Teeth and Gums, and that
 “ is Raisins ; he might also have said Figs ;
 “ these, when they are plentifully used, do
 “ manifestly bring on the Tooth-Ach, which
 “ I have experienced in myself, who am not
 “ inclin’d to that Pain : I have also observ’d
 “ that both Raisins and Currants do affect the
 “ Hands of those Grocers that handle them,
 “ and rub them in order to their parting them
 “ that Way ; for in Length of Time, it will
 “ make their Hands rough, and will breed
 “ Scales, much like that of a leprous Kind ;
 “ but I plainly find, that the true Cause of this
 “ Effect, is only due to some clammy cor-
 “ rosive Substance that lies upon the Surface of
 “ this Fruit, for if you wash your Raisins and
 “ Currants in fair Water, and then make use
 “ of them, they will not hurt your Fingers,
 “ nor do any other Harm ; but Sugar is far
 “ from deserving any such Imputation, for I
 “ have caus’d it to be put into hollow Teeth
 “ without giving any Uneasiness.”

“ Having consider’d Sugar as one of the un-
 “ likeliest Things in the World to devour
 “ Flesh or corrode Bones, I made it my Busi-
 “ ness to try it on myself, for many Weeks
 “ successively, I rub’d my Gums and Teeth
 “ with fine sifted Loaf Sugar, and made my
 “ Gums better and Teeth whiter.” So far this

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learned Man. But what shall we say of those learned Men that slander it, nevertheless use it, and not for those corrosive Qualities they attribute to it, but for its contrary Virtues? That it makes a grateful, pleasant and useful Snuff, has been experienced by many, who had almost lost their Voices, as Sugar by its balsamick Virtue heals the Throat and Palate.

(15) Sugar, by its soft and balmy Temper, if mix'd with Milk or Water, and us'd as Soap, makes the Skin both smooth and supple, and is particularly good, if diligently apply'd to chap'd Lips.

(16) As the finest Sugar is thus particularly Wholesome and Salubrious, so every Sweet proceeding from it, is necessarily so. Melasses or Treacle, which is the lowest Order of Sweets produced of Sugar, for its great and many Uses is not to be equall'd by any other Substance or Body : Some of its Excellencies I shall enumerate. In many of the Counties in *England*, particularly the Northern, People give it to their Children, and even themselves use it instead of Butter, not as it is more cheap, but as it is a more nutritious Diet, and especially to Children more pleasant ; it neither fouls nor clogs the Stomach, but by its Moisture and Warmth causes a gentle Fermentation, and thus the Body of the Syrup being open'd, diffuses its strengthening and enlivening Virtues ; and as it is most certainly possess'd of those Qualities, how much more Serviceable would it be to the Laborious Part of Mankind, throughout the
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Kingdom, if us'd instead of Butter or Cheese? It might perhaps be said, that to give a Man Treacle to his Bread, would be to make a Child of him again; but he would be made sensible by the kindly Warmth dispers'd through all his animal Faculties, that it is a more proper Diet than either Butter or Cheese. It may perhaps be said, that it will render his Beer disagreeable; it may be so, but there will be no Necessity of drinking so stimulating, inflating and corrosive a Liquor. Ale a softer Fluid is more agreeable to our Constitutions; Digestion would be more easily perform'd, as much less Power is requir'd of those Organs, that Nature has appointed to that Function, than when such a solid and heavy Body as Cheese is to be dissolv'd and thrown off. It seems strange, that a Liquor of so rank and odd a Taste and Odour, and so disagreeable at first to most People, as Porter, should obtain so considerable a Consumption; but being introduced to the Tables of the Great, to drink Porter, became a Fashion and a Mark of Politeness.

(17) But leaving this Digression. Let us consider it as the Original of a Spirit, Wholesome, Pleasant and Useful. In order to do what Justice may require, and to make its Virtues more conspicuous, and to do it Honour, as some perhaps may ignorantly imagine, we will compare it with those two favourite Liquors, *French Brandy* and *Rum*. That *Melasses Spirit* has for its Original, a more worthy Subject than either, will admit of no Dispute; but let

us consider the particular Qualities for which *French Brandy* is so much esteemed: These, as claim'd by its Favourers, are a certain Flavour, which we cannot attain, with a Softness and Fulness in the Mouth: In order to form a right Judgment of these Qualities, it is necessary to consider from whence they proceed; and if we prove they proceed from bad Principles still residing in the Subject, we must regard them as Impurities, and however supported by Fancy or Humour, we must condemn them, for neither Fancy nor Humour will ever be allow'd to alter the Nature of Things.

(18) *French Brandy* is an unrectified inflammable Liquor, produced of the Lees, and feculent, gross and otherwise useless Parts of the Juice of the Grape; also of the Juice of such Grapes as are damag'd and spoilt; after they have been properly fermented, and put into a Still, by a gentle Fire a Liquor is drawn that is distinguish'd by the Name of low Wines, which being once more put into the Still and drawn as before, a Spirit is produced, which being no further depurated, is not depriv'd of those Impurities which cause those Sensations, that are so much admir'd.

(19) That a Spirit made of Melasses has many heterogeneous and foul Particles, that strongly adhere to it, we do not pretend to deny; but we assert that before it is offer'd to the Publick, it is made a clean and fine Spirit; we do not say a perfectly pure Spirit, which is hitherto unattainable, though no where so well under-

understood, nor so nearly obtain'd as here, by the great Masters in the Art of Rectification; and as it is made a neat inodorous and tasteless Body, is of general Use, and capable of receiving whatever fine aromatic Taste and Odour the Artist shall assign it, and is always made use of in the finest Cordials: It is not at all surprizing to meet with a Recipe for a fine Cordial, of a good old Lady's, where *French Brandy* is the Basis; but when it comes from a Man who pretends to some Understanding in the Nature of Things, it denotes the greatest Ignorance in not knowing that whatever Taste or Smell we design to give in its utmost Purity, must be in a Subject that has the least Smell and Taste in itself, consequently *French Brandy* is, by its high Flavour, an improper Subject for such a Purpose, and therefore of a very confin'd Use.

(20) The Original of Rum, is the Scum and other Refuse procur'd from the Juice of the Sugar Cane, in the bringing it to that Consistence which we term Sugar: This Refuse consists of those earthy and oleaginous Particles, which by the Use of proper Materials, and the Assistance of Heat, are separated, thrown up, taken off, and being mix'd with Melasses or Drainings of Sugar, are then fermented and distill'd.

(21) It is said of Melasses Spirit, that it is hot and fiery, and unfit for Use till it has stood three or four Years, that those fiery Particles communicated to it in passing through the
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Still, may be dissipated and lost. That Melasses Spirit should partake of Fire more than any foreign Spirit, seems to us an Absurdity to assert, till it is made appear to be in its Nature more retentive of those Particles, or that it more readily receives them, neither of which at present can be admitted. The Distiller may, by Haste or Carelessness, injure it, but no Spirits are fit to be drank, till they have stood some small Time: Old is a Term made use of to deceive the Fanciful; for it may be very justly said, that few Things are valuable for being old, and that Liquors are seldom found so: Malt Liquors become hard, Wine loses its Taste and Odour, and Spirits their Strength.

(22) It may seem paradoxical to assert, that if a well rectified Melasses Spirit, was to be mix'd in a certain Proportion, with a fine Coniac Brandy, it would improve the foreign Flavour, after a proper Time for Digestion, and make it more eligible to People of the best Taste, and thus it would be in Rum. The surprizing Phænomena, by the Mixture of two Bodies, without any Additament, may be seen in Mr. Boyle's Mechanical Production of Tastes and Odours.

(23) It is most certain, that few People among the great Number of the Admirers of these favourite Liquors, are tolerable Judges, as Fancy is their principal Guide, attracted by the Words *French* or *Foreign*; Rum as most deserving, has not the fewest Fanciers, who are more happy than those who are the Admirers of
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of *French* Brandy, as it has an additional Excellency assign'd it, by which its Partisans or Fanciers contribute to their Healths, whilst they are carousing; and if Rum be Wholesome, why should not Melasses Spirits be so too, as being of the same Genus, though more purified, and made by more skilful Operators. The *French* indeed, with good Policy, have prohibited the making of Melasses Spirits, as being too powerful a Rival to the Juice of the Grape.

(24) That Melasses is a proper Subject for brewing either Ale or Beer, is well known; a learned Gentleman has indeed told us, that Malt is generally preferr'd in *England*, on account of its Cheapness; but I conceive we may rely for that on the Experience of the common Brewer, whose only Reason for not using of Melasses, is the considerable Penalty he would be liable to, in case of a Discovery; nevertheless it is well known, that several Brewers have formerly run the Risk, from which we may safely conclude, that Gentleman to be mistaken; but as this Penalty does not extend to the brewing with it for private Use, it is practis'd by many People, but I am in Doubt of its being used in the best Manner, either for Profit or Pleasure, which I may perhaps consider elsewhere, as it has belonging to it, three of the most valuable Properties, Cheapness, Wholesomeness and Pleasantness.

(25) That Sugar is a most valuable Concrete, we have made appear; yet what we have
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faid is very fhort of what it deferves, or might be obferv'd in its Praife ; does not Sugar make many of the moft agreeable Fruits ftill more fo, by eating Sugar with them, even when in their greateft Perfection ? As Raſberries, Strawberries, &c. An eminent Phyfician ſpeaking in Vindication and Praife of Sugar, afferts it to be a fort of Vicegerent to the Sun, by anticipating its ripening Virtues, and making of unripe Fruits palatable ; for though the maturating Faculty, or heat of the Oven, may claim its Share by fitting it for the Reception of the Sugar, it is owing to the Sugar only, that it becomes pleafant and delightful, for without it the unripe Fruit would taſte ſowerer than before it was heated in the Oven.

(26) The healthy or ſalubrious Quality of Sugar, is ſhewn by its preventing the moſt delicious and corruptible Fruits from perifhing, and as it reſiſts Putrefaction, is proper for preſerving Subſtances a conſiderable Time ; for this Reason, in the Shops, Conſerves, Electuaries, Linutuffes and Confections, cannot be made without Sugar, neither can Roots and various other Things be preſerv'd without it ; for it not only aſſumes the Smell, Taſte, and Colour of all the Ingredients, but alſo preſerves their Virtues and Qualities for many Years. For a Confirmation of its inexpressible Perfections, let us but for a ſmall Space of Time, retire into the Lady's Confectionary and Paſtry. If our Taſte be allow'd to give us any Delight, or that any pleaſing Senſation may be convey'd to us by our Palate, where can we find ſo delicious

delicious a Regale? And is it not owing to Sugar solely? If not, say from whence you can procure one to supply its Place? Even Honey will not.

(27) But not deprive the Ladies of that Share of Merit, which is most justly their Due; their Industry in the Application of it, will always be most gratefully acknowledged by all Lovers of Sugar; and the Consideration of its Passage through their fair Hands greatly enhances its Value; it is to them we make our Appeal in behalf of Sugar, and beg their Patronage; to be as just as they are beautiful, they must espouse the Cause of Sugar, and not to seem ungrateful, make it of their Party, for nothing will, if applied, so innocently support those Perfections that so powerfully contribute to make them always desirable, in which the Happiness of Mankind so greatly consists: If I might be worthy to advise them, the Love of Sugar should be the only Test of Good-nature; for as Sugar corrects sharp Humours in the Body, why may it not, by its pleasing Taste and balsamick Qualities, be expected to correct and soften, crabbed, surly and unsociable Tempers?

(28) Sugar does not only assist the most delicious Fruits in their grateful Flavours, when in their utmost Perfection, but likewise when Nature deprives us of them. Are we not beholden to Sugar for many wholesome and pleasant Tastes, which, without its Assistance, would be of little Use? Such solid Substances as the Rinds of Lemons, Oranges, and Citrons, it makes most grateful Sweetmeats; let us

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not forget our Obligations to Sugar, for the charitable Assistance and Comfort we receive by that exotic Root Ginger; and what Comparison can be made between the common Ginger, and that which is gather'd young and incorporated with Sugar, not only in its grateful Taste, but singular Use? Which is, to relieve us from those racking Pains the Human Frame is so subject to by Flatulencies, and which it so powerfully performs: And where shall we find another Medicine, that when our Health requires its Application, its Pleasantness will provoke its Use? And for this we are indebted to Sugar solely.

(29) There is an Objection to the Use of Sugar, which never fails of being mention'd upon every Occasion, and sometimes by People who pretend to some Skill in Chemistry, which is, that Sugar is of a hot Nature, and may cause Fevers, especially in young Children; but let us not take for granted as Truth what cannot be made appear, nor brings, upon Consideration, the least Shew of Reason with it: They say it has a fiery Quality belonging to, and certainly latent in it, because, when perfectly fermented, it produces a strong Brandy by Distillation. But are not the Nature and Texture of all Vegetables chang'd by Fermentation? And will not our most delicious and cooling Fruits, being properly fermentated do the like? Will not Apricocks, Peaches, Strawberries, &c. which are very cooling, when set in a proper Ferment, produce a hot and fiery Spirit

Spirit? And does not the Juice of the Grape give, after Fermentation, an inflaming Liquor call'd Wine? After that a burning Spirit? And will any of these wise Pretenders say, that he has eaten Grapes, or other Fruits, till he has felt a fiery Spirit within him? Or will the natural Heat of the Stomach, of either old, young, or middle aged, cause a perfect Fermentation? Or what Quantity of Sugar should a Person eat to produce an inflammable Spirit, and thereby give him any manner of Uneasiness? A Man may eat Grapes or other cooling Fruits, in such a Quantity as may cause a Surfeit, the Consequence of which may, for ought we know, be a Fever? We therefore decide that the Objection is idle and without Foundation. What is here contended for, is nothing more, than that the natural and peculiar Properties of Sugar, are so soft and balsamick, as to afford Nourishment to both Old and Young; and that its kindly Warmth is greatly assisting thereto: We would not be understood to say, that Sugar is agreeable to our Stomachs, and its Contents at all Times; we are perswaded, that nothing that Nature produces is so; and that the great Original of all Things never intended a Body of that Kind. But let us not be led away by the Whims, Fancies, and Chimeras of the pretended Wise; Experience, conducted by our Reason, is the only Guide wherein the Word Infallible may be used in a positive Sense.

(30) The People in *London* and the Counties adjacent, are particularly fond of raw Sugar,
of

of which the finest sort is commonly call'd *Lisbon* Sugar, chiefly brought from *Barbadoes*; and the Reason assign'd for it is, that it seems more sweet than the Sugars which are refin'd here; that is to say, Sugar and Dirt are more sweet, than Sugar is when the Dirt is taken from it; which is manifestly contrary to the Nature of Things: And whoever gives himself Time to think, can never be made to believe, that to deprive Sugar of those Particles, whereby it becomes more simple and homogeneous, should cause it to lose its inherent and peculiar Property, Sweetness, and from which it receives its Name of Sugar. Sugar is replete with oily and earthy Substances, which by their Gravity make a more forcible Impression on the Tongue and Palate, and not being dissoluble, but by their strict Union and Cohesion with the Sugar, continue longer on the Organs of Sensation, and thereby cause a Deception; for no Man will say that a certain Weight of Sugar and Dirt together, contains a greater Quantity of Saccharine Juice, than the same Weight of Sugar without Dirt; and he may at any Time, if he be fond of that fancied Lusciousness, debase the refin'd Sugar, by mixing a proportionate Quantity of those heterogeneous Substances, of which it has with much Labour been depriv'd, for the same Cause will have the same Effect. In the Countries at a greater Distance from *London*, particularly Northwards, the People are so greatly attach'd to refin'd Sugar, though of the coarsest Kind,

as to render the other unfaleable; and I am persuaded it cannot be justly said, they are more deficient in the Art of Penetration, than we who live in a milder Air.

(31) It is farther said to its Prejudice, that the best refin'd Sugar has an acid Taste; this surely must be Imagination and Fancy, as the Subjects made use of in refining Sugar, are alkalizate or neutral Bodies; and whatever Acidity or Sharpness is to be met with in raw Sugar, is absorb'd, imbib'd or taken from it, as will be made appear, when we treat of the Nature and Qualities of the several Bodies us'd in the refining of Sugars.

(32) This Accusation of Acidity must fall to the Ground, if we consider the Use of fine Sugar in Chirurgical Operations, that when used in Fomentations, to wash off the acrimonious Salts that cause an Ulcer, it deposits more soft and healing Particles in their room, and that it both incarnes and cicatrizes.

(33) I had almost forgot one heavy Crime laid to its Charge, that it generates Worms in Children; but if we consider that Worms are generated either by a coarse, crude and verminous Matter, or by Eggs of Insects, taken in with the Aliments, but Sugar and Honey never putrify.

(34) To confirm what has been said in behalf of Sugar, and its salubrious Qualities, we shall relate an Account, as we find it in the Philosophical Transactions abridg'd, *Vol. 5, p. 311*, sent by Dr. *Slare* to the Royal Society, as follows.

“ I have

“ I have had reason to give a great Cha-
 “ racter of Sugar, on account of some extra-
 “ ordinary Effects it seem'd to have on my
 “ Grandfather, forty Years since ; he made it
 “ his daily Practice to take or lick up as much
 “ Sugar as his Butter spread upon his Bread
 “ would receive, for his constant Breakfast,
 “ unless he happen'd to exchange it for Honey
 “ sometimes ; he frequently sweeten'd his Ale
 “ and Beer with Sugar, he had Sugar put to
 “ all the Sauces he us'd with his Meat, he
 “ had all his Teeth in his Mouth at eighty
 “ Years, strong and firm, never had any Pain
 “ or Soreness in his Gums or Teeth, never re-
 “ fus'd the hardest Crust. In his eighty-second
 “ Year one of his Teeth drop'd out, and soon
 “ after that a second, which he put into my
 “ Hand, and was one of his fore Teeth ; he
 “ bid me feel the Cavity, where I struck my
 “ Nail upon a Bone ; in short, all his Teeth
 “ came out in two or three Years, and young
 “ ones fill'd up their room ; he had a new Set
 “ quite round. His Hair, from a very candid
 “ white, became much darker ; he continued
 “ in good Health and Strength, and without
 “ any Disease, and died in the 99th or 100th
 “ Year, of a Plethora, as I guess for want of
 “ Bleeding. He was a *Bedfordshire* Gentleman,
 “ of an old *English* Family, and the Case well
 “ known. This reconciled me much to vin-
 “ dicate Sugar, which I have formerly done
 “ before the Royal Society, and have shewn
 “ the unjust Calumny of the famous *Willis*
 “ against

“ against Sugar, who charges it with a cor-
 “ rofive Liquor, as bad as *Aqua Fortis*, he
 “ calls it *Aqua Stygia*: I examin’d it, and
 “ found the Charge unjust; that Sugar con-
 “ tain’d no worse Substance in it than Milk,
 “ and Honey, and Manna; nay, Bread itself.
 “ The Experiments were approv’d of, and
 “ are in your Journals.”

(35) The same Dr. *Slare* has likewise pub-
 lish’d Part of a Letter of Dr. *Cooke’s*, concerning
 the Duke of *Beaufort*, who died about the
 Years 1701, or 1702.

Bristol, November 3, 1714.

“ The great Duke of *Beaufort*, Grandfather
 “ to the late, died of a Fever in the 70th Year
 “ of his Age, was open’d in the Presence of Dr.
 “ *Hay*, Dr. *Winch*, Dr. *Baskerville*, and myself;
 “ all the Viscera were as sound as in a Per-
 “ son of 20, never troubled with Coughs, and
 “ his Teeth firm: His Chaplain Mr. *Hopkins*,
 “ and his Secretary Mr. *Crow*, told me, that
 “ for near 40 Years, he had used near a Pound
 “ of Sugar a Day in his Sherry, Chocolate
 “ and Sweetmeats, which he did eat con-
 “ stantly after Dinner. I asked the House-
 “ keeper, Mrs. *Grimes*, and she said, that he
 “ did at least take that Quantity daily, and
 “ would mention the *English* Proverb,

“ *That which preserves Apples and Plumbs,*
 “ *Will also preserve Life and Lungs.*”

(36) Let

(36) Let us hear also what Dr. *Slare* says of himself, in Respect of Sugar. “ If any one
 “ says he, would be so curious as to enquire
 “ more particularly into the State of my
 “ Health, and demand of me, as a living Evidence, to give a faithful Account of Sugar
 “ by my own Experience, and how it affected
 “ me, I shall then bring in a third Case,
 “ whereas I intended to represent only two.

“ I do declare that I cannot charge Sugar
 “ with one Ail or Injury that it ever brought
 “ upon me ; that I was for several Winters
 “ troubled with a pituitous or phlegmatic
 “ Cough, for three or four Months, due to the
 “ thick *London* Air ; that I made much use of
 “ Sugar, and sometimes of Honey, which did
 “ me good, and enabled me to pass the
 “ Winters more easy ; that the Country immediately relieved me, and in a short Time
 “ cured my Cough ; I am, God be praised,
 “ free from any Disease, have no Symptoms
 “ of Scurvy or Consumption ; and though near
 “ Sixty-seven, yet few will allow of it by my
 “ Countenance or Activity, that I present that
 “ Age ; notwithstanding my having indulg’d
 “ myself in such Quantities of Sugar, I have
 “ liv’d to bury above eighty Fellows of the
 “ College of Physicians that were my Seniors,
 “ since my first Admittance, and a vast Number that were my Juniors ; many of this
 “ Number were bitter Enemies to that most
 “ delicious and curious Preparation, fine Sugar :
 “ I write without Spectacles, and can read a
 “ small Print, can walk ten or fifteen Miles
 “ with

“ with Ease, and can ride thirty or forty
 “ Miles a Day, if need requir'd it. I may
 “ justly attribute a great deal of the healthful
 “ Constitution, which I at present enjoy, to
 “ the nourishing and balsamick Virtue of
 “ Sugar.”

(37) We hope what has been said, will demonstrate Sugar, particularly refin'd Sugar, to be the most salubrious, pleasant and useful Concrete that Mankind has hitherto been acquainted with.

Its Wholesomeness has been proved from many Instances of its soft, balsamick and kindly Nature, its Pleasantness from the universal Approbation of every Species of Beings, and its Usefulness from the great Advantages which Mankind do, and may further receive from it, if properly made use of. The false Accusations and unjust Imputations, which some of the Learned and Unlearned, have laid to its Charge, have been clear'd up, and set in their true Light; it is therefore hop'd, that neither the Unwary nor Fanciful, will continue their Prejudices against so deserving a Concrete as Sugar, which cannot be parallel'd.

I shall conclude this short Essay with some Remarks on FERMENTATION, as laid down and recommended in a Book lately published by Subscription, called *The Natural History of Barbadoes*, written by a Gentleman possess'd of a Cure in that Island; and as by the Manner of its Publication, it may not be so generally read, as he may wish, or

E his

his Invention may deserve, we hope the practical Distillers here will allow us Merit, in thus endeavouring to make them acquainted with it, although we cannot take upon us to say, they will reap any great Advantage thereby, he says,
 “ That most of our Planters are yearly great
 “ Sufferers, especially when they first begin to
 “ distil, for want of a proper Knowledge how
 “ to raise and continue a regular Fermentation
 “ in the Mulsa intended for Distillation.”

In order therefore to set them right, and that they may proceed, as he says, with certainty, he first observes, “ That no Fermentation can
 “ be rais’d under six and thirty Degrees of
 “ Heat, or kept up after ninety; a lesser than
 “ the former will not be sufficiently warm to
 “ raise an Ebullition, and a greater than the latter
 “ dissipates the spirituous Particles too much;
 “ therefore, says he, if Experiments were made
 “ with a Thermometer in every Distil-house, to
 “ fix the certain Degree of Heat, that a well pro-
 “ portion’d Mulsa would ferment in, it would
 “ be easy, by the Help of this Instrument,
 “ always afterwards to ascertain this necessary
 “ Degree of Heat, let the Change be ever so
 “ sudden and considerable; for if the Heat
 “ should prove so great as to exceed that De-
 “ gree, in which such a well proportion’d
 “ Mulsa was used in Time past to ferment
 “ best, then the Windows towards the East
 “ ought to be open’d, so as to admit such a
 “ Quantity of cold Air, as would reduce the
 “ Heat to a proper Standard; on the contrary,
 “ if

“ if the Spirit on the Thermometer sinks below
 “ the necessary Degree of Heat, than these
 “ Windows ought to be entirely shut up, in
 “ order to procure a sufficient Degree of Heat :
 “ By this Means the Distiller may come to a
 “ Certainty, and proceed by a Rule, and not
 “ by Chance.

“ If after such Rules and necessary Cautions,
 “ the Mufsa doth not ferment,”

And goes on to enumerate Causes, to one of which, he says, it must be attributed, and not to his Rule.

The Method must be own'd to appear extremely easy, and it seems very strange that it should have hitherto escap'd the Thoughts of so many learned Men, who have taken indefatigable Pains to account for, and explicate the many wonderful Appearances that are to be met with in the Practice of Fermentation ; but we hope to be excus'd, if in examining this infallible Rule of performing one of the most surprizing Operations in Nature, we observe Defects in it : He has not offer'd one Proof or philosophical Argument to support it, and we observe that in Cases of this kind, no Proof can be admitted but such as are brought from Experiments. Fermentation in itself is said to be utterly unknown to us, and that we can only be acquainted with it from its Effects ; and being the only Operation in Nature, by which an inflamable Spirit can be obtain'd, is peculiar to the vegetable Kingdom.

We say then, that intestine Motion is the effective Cause of Fermentation.

That Air is a Fluid contain'd in all Bodies ; and,

That Fire is an inseparable Concomitant of Air.

Air then, influenced by Heat, is by its elastic Quality, the Cause of intestine Motion ; and as no Degree of Heat remains constant, but is perpetually either encreasing or diminishing, intestine Motion in the Particles of Bodies is more or less accelerated in Proportion to the Degree of Heat it partakes of.

But there is another Power which we must consider, as it is no less active in the Business of Fermentation, this is Attraction ; that there is an attractive Power in all Bodies, or that all the Parts of Matter are mutually drawn towards one another is universally allow'd, and as Particles of Matter, more or less, approach to each other, according to the attractive Power they are possess'd of, their Velocity increases, and Heat is proportionably excited.

By these mechanical Operations, arising from the elastic and attractive Force of Bodies, is Fermentation rais'd and carried on, but a constant watching and observing this intestine Motion is necessary, to prevent the ill Effects of any sudden Production of Heat or Cold.

By the foregoing Account of the Means by which Fermentation is perform'd, this Gentleman's Rule appears to be unphilosophical, impracticable

practicable, and absurd in its first Conception; but let us consider it as laid down by him.

The Subject which he proposes to ferment, is a well-proportion'd Mulsfa, and is to be of the same Consistence, Body and Strength of a former which had succeeded well; "therefore," says he, we are to apply the same Degree of "Heat as was applied to that." We might object to this, and ask, by what certain Rule, he knows his well-proportion'd Mulsfa to be of the same Body and Strength as the former? as we do not think it possible to discover the Strength and Ability of any Substance or Matter, in a State of Inactivity: But to wave that, let us suppose this Mulsfa to be as he would have it, and the Degree of Heat proportion'd to his Desire, what will necessarily, nay most evidently be the Consequence, but a most imperfect and destructive Fermentation? for the Degree of Heat that rais'd this Mulsfa from a State of Inactivity, would by its Continuance farther increase this intestine Motion, and consequently, the Heat, for Reasons already mention'd, and thereby cause such an Effervescence as must destroy whatever regular Fermentation may have been begun. Had this Gentleman but suppos'd, however far from Truth or Probability, that when-ever the intestine Motion in the fermenting Body had increas'd beyond what was intended, by his fix'd Degree of Heat, it would affect the Medium, and thereby discover on his Thermometer, the Danger or Situation of his Mulsfa, by which he might rectify what-ever

ever Disorder attended it, we might have thought he had been possess'd of some Idea of the Nature of Fermentation; but that he should conceive so abstruse an Operation, as that of Fermentation, was to be perform'd by looking on a Thermometer, is most surprizing; and he may be assured, that without a constant watching of the Mulf, no perfect Fermentation can be accomplish'd, and that other Means must be employ'd than opening and shutting of Windows.

The notable Use this Gentleman has found for the Thermometer, brings to Mind a Set of Philosophers that Capt. *Gulliver* met with in his Travels, who had form'd a Project for a more easy and expeditious Method of writing a Treatise in any Science, by a wooden Engine; and I can not but think, if the ingenious Author of those Travels were now in being, and Master of his accustom'd discerning Spirit, he would recommend such an Engine to the Use of some modern Professors, that they might by its Assistance, prevent any Reflection upon so worshipful a Body of Men as their Electors. But to leave this Digression, we will consider the Case and Method of our Distillers here, and confess we have known them in a Dilemma; but then they are differently circumstanced.

The Excise Officers being oblig'd to take the Gauge of the Wash, the Distillers are under the Necessity, in fermenting, of bringing it within a certain Quantity, or they would be considerable Sufferers by an Increase of Duty; and

and though our Melasses here is pretty much of one Body, yet through Inadvertency, it may happen to fall into too violent an Ebullition, and thus be in Danger of an imperfect Fermentation ; but this not being the Case Abroad, whatever Part of the Juice of the Cane is appropriated for Distillation, and however proportion'd, it may be properly, and to the utmost Advantage fermented, but not without diligent and accurate Observation ; for Particles of Matter, as we have already observ'd, whatever Strength or Ability they may be endow'd with do not always discover it in a State of Inaction ; but when once set in Motion, if not diligently watch'd and considered, will, especially in so warm a Climate as *Barbadoes*, so increase in Heat, as to become a Kind of Menstruum to its spirituous Particles, or so weaken them as to render the Fermentation of small Effect.

This Gentleman might perhaps think that Philosophy was not likely to be met with in a Distil-house, but he might at the same Time have reflected, that philosophical Rules are there practis'd, though not known in what they are founded ; and we shall observe, that this infallible Rule is no way consonant to what our practical Distillers chuse, in order to a perfect Fermentation ; their Workhouses are always large and airy, were they close and confin'd, it would be impossible, during the Fermentation's being at its Heighth, for any Man to continue one Minute in them, the Fumes are at that Time so strong and powerful ; they are also of
Opinion

Opinion, that Fermentation is best carried on by a Succession of Heat and Cold, within proper Degrees; and that the most eligible Season is that wherein the Weather is most uncertain and changeable.

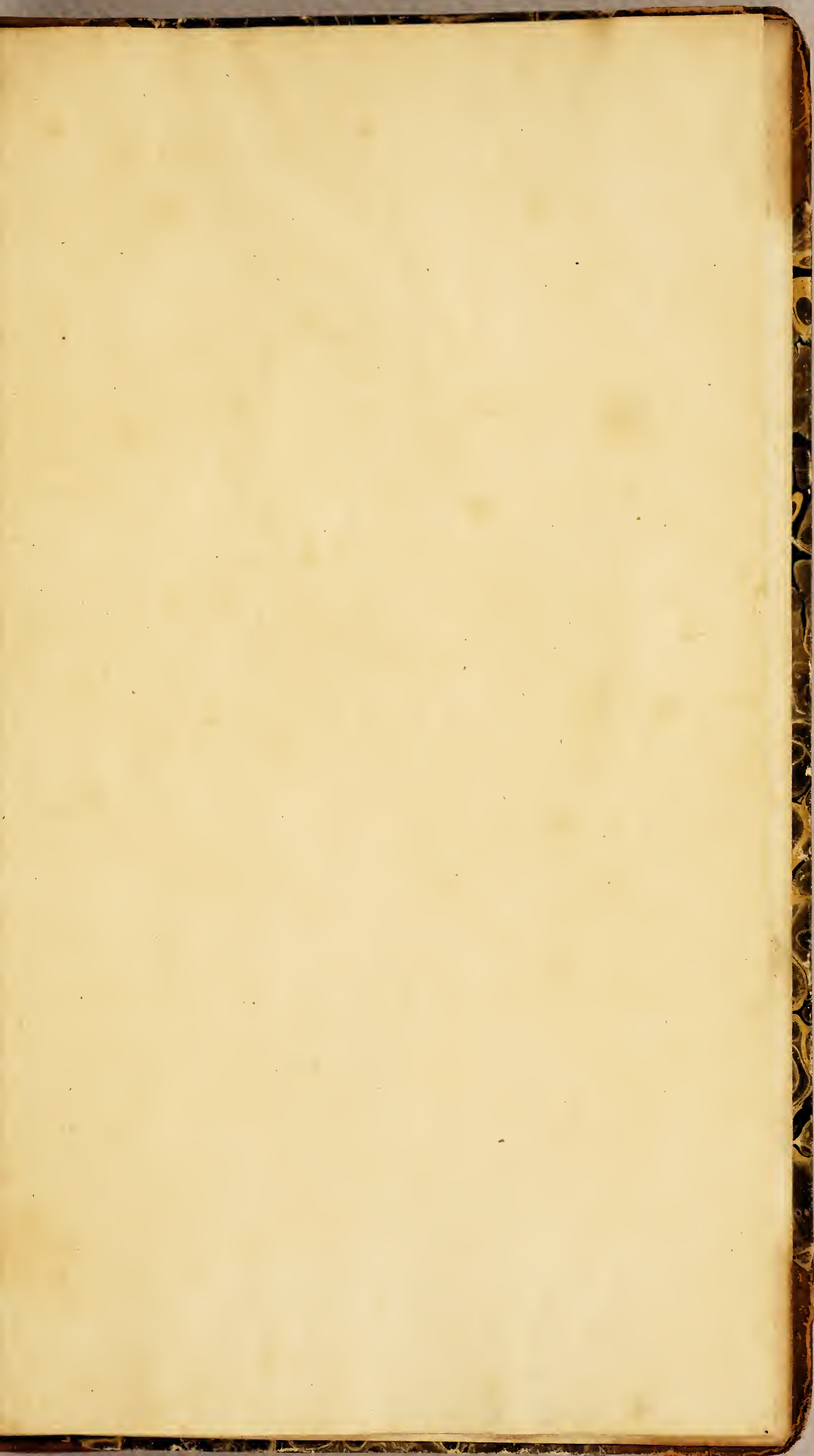
We apprehend the Planters in our Sugar Islands, where Distillation is so much practised, are in this Matter misrepresented; for where Men receive Encouragement, it cannot be doubted but they understand the Business they are employ'd in; and that good Encouragement has been given to People there, appears from the following Instance: Being at a Plantation in *Barbadoes*, call'd *Searle's*; on a Day when General *Frere*, the Owner of the Plantation, and the Governor, happen'd to call, after some Conversation with the Manager, whose Name was *Mayo*, and he had left them, Mr. *Frere* told the Governor, that he gave Mr. *Mayo* Four Hundred Pounds a Year for his Service on that Plantation only, he having other Managers on his other Estates: From this we infer, that where considerable Salaries are given, it cannot be to People so very ignorant; neither can it well be suppos'd, that any Man so stupid or indolent, as not to remember one Year what he did the last, should be intrusted with so large a Concern as the Management of a Plantation, in which the keeping up of the Cattle, and Care of 2 or 300 Slaves requires no small Industry and Pains. We remember it a controverted Point at that Time, and it may possibly remain so still.

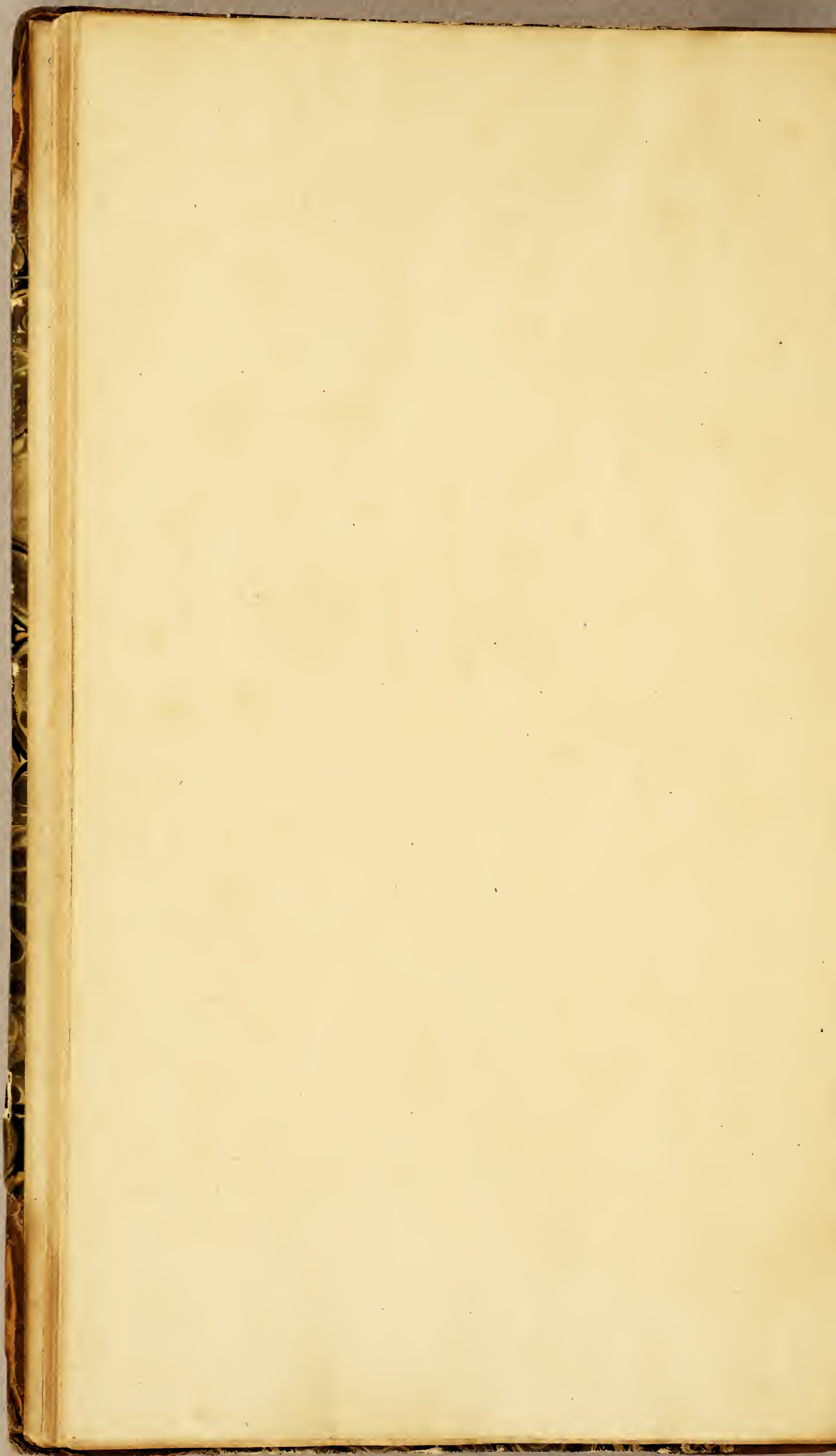
Whether

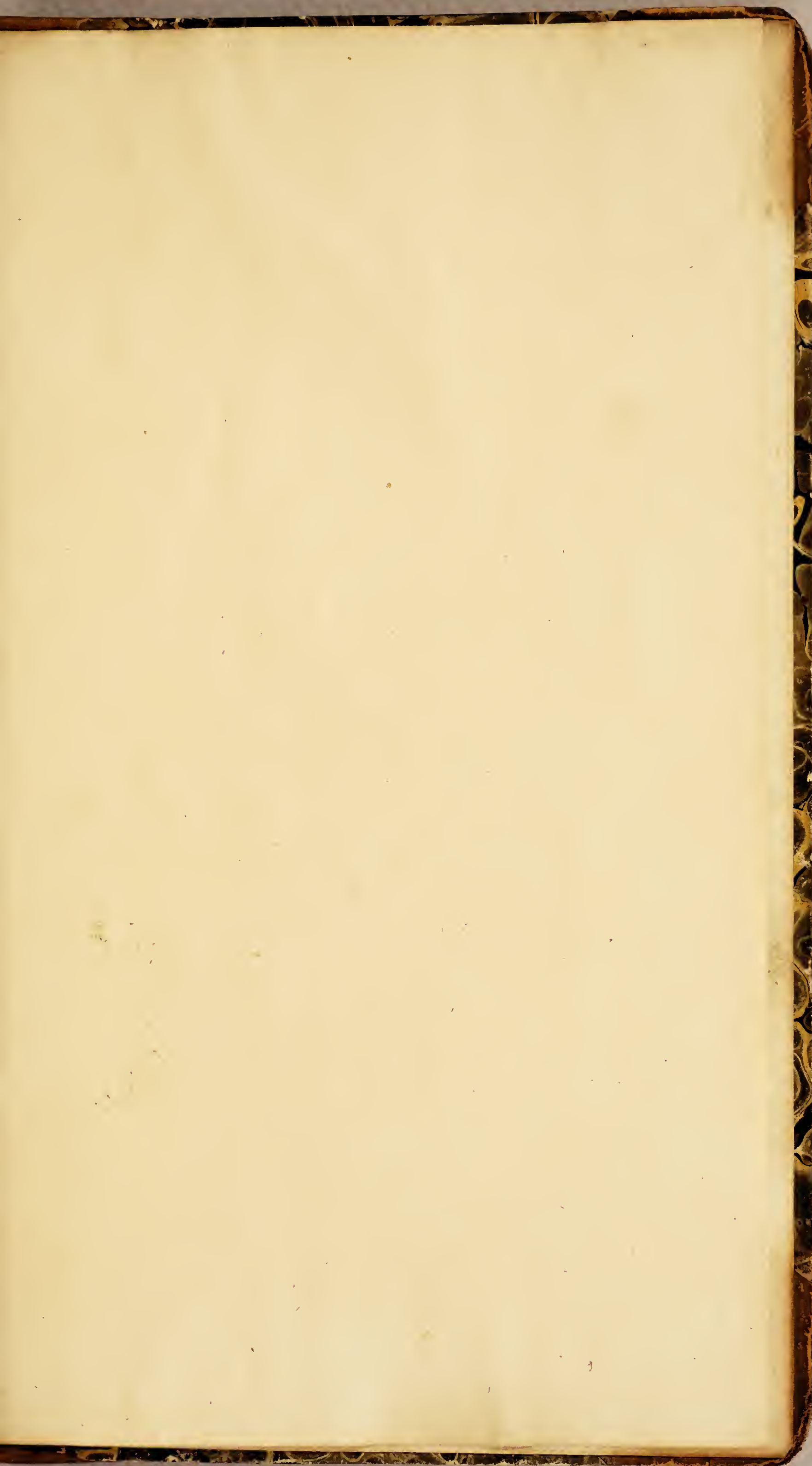
Whether the buying of new Slaves, or allowing the Women Time to take Care of their Young, be most Advantageous, but think it will admit of no Dispute which is the most humane.

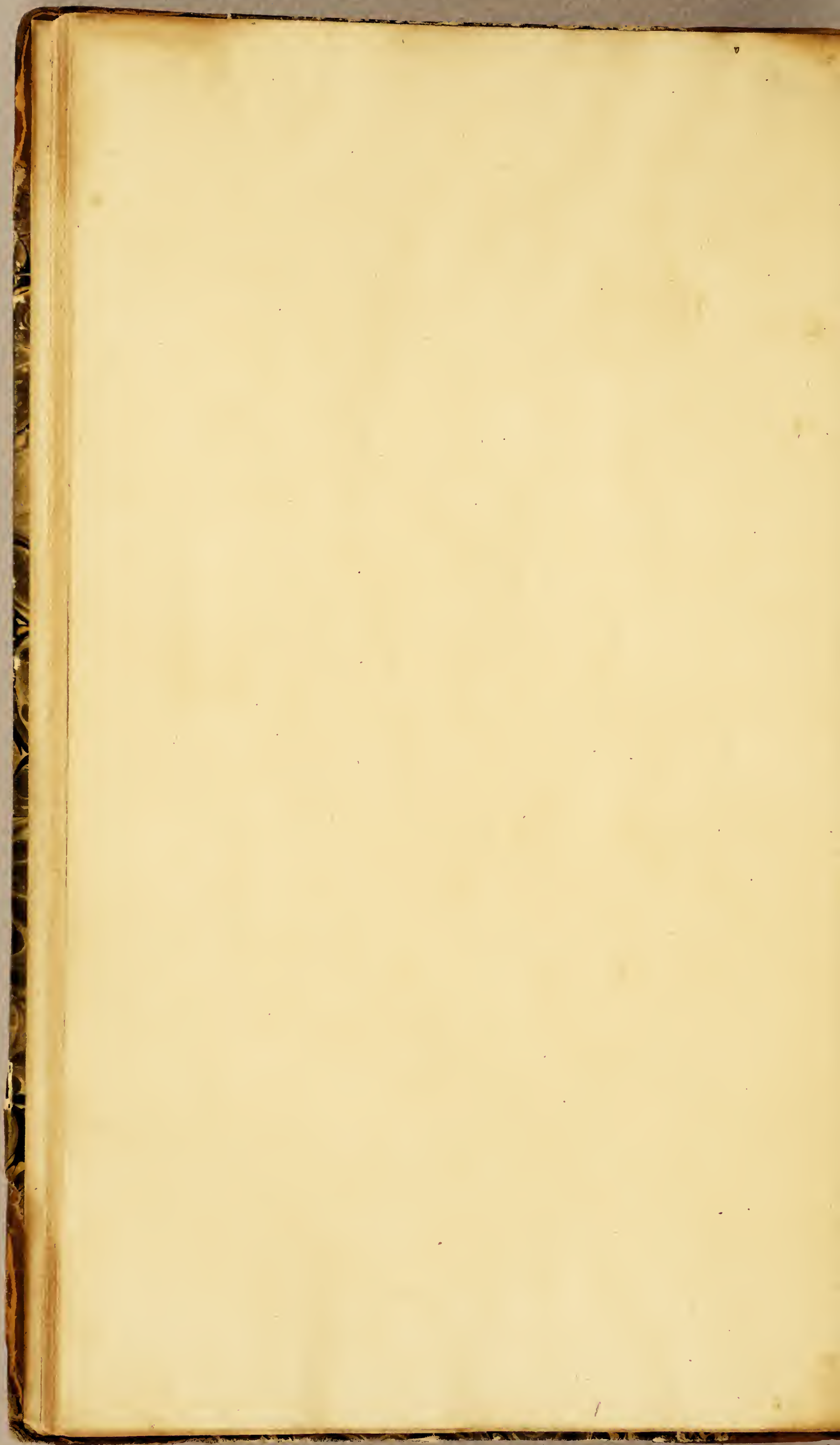
Having shewn how impracticable it is to ferment the Mulfa by the Thermometer, and consequently that the Rule before laid down, cannot assist those Gentlemen for whose Service it seems intended; yet we are perswaded, that if the Hints here given are closely attended to, they will lead them successfully to their desir'd End.

F I N I S.









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